

Enter the Amendments
to all claims

In the Claims:

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Please amend the claims as follows:

1. (currently amended) A wireless controller for at least one of controlling or monitoring a tool operatively connected to an industrial robot, the controller comprising:

a wireless communication module operatively connected to the tool and comprising a processor having a communication function module configured to handle wireless communication to and from said tool, and a control unit configured to carry out at least one control function for one or more actuators of said tool;

a configurable hardware input/output interface; and

a supervisory controller physically separate from the industrial robot and configured to wirelessly send signals to the wireless communication module to control operation of the tool.

2. (previously amended) The wireless controller according to claim 1, wherein the control unit comprises at least one computer program executable by said processor configured to handle the wireless communication.

3. (previously amended) The wireless controller according to claim 1, wherein the control unit configured is further to process a signal from at least one sensor operatively connected to the tool.

4. (cancelled)

5. (currently amended) The wireless controller according to ~~claim 4~~, claim 1, wherein the hardware input/output interface is integrated in one unit with said processor.

6. (previously amended) The wireless controller according to claim 1, wherein the control unit further comprises a program configured to carry out at least one of receiving or storing operational data of said tool.

7. (previously amended) The wireless controller according to claim 6, further comprising:

a memory configured to store operational data.

8. (previously amended) The wireless controller according to claim 6, wherein the control unit further comprises a computer program configured to process the operational data of said tool.

9. (previously amended) The wireless controller according to claim 6, wherein the control unit further comprises an output configured to communicate data dependent on the stored operational data to a display.

10. (previously amended) The wireless controller according to claim 6, wherein the output configured to communicate the stored operational data comprises an embedded web server.

11. (previously amended) The wireless controller according to claim 9, wherein the output of the control unit is configured to communicate the stored operational data via the wireless communication module.

12. (previously amended) The wireless controller according to claim 9, wherein the output of the control unit is configured to communicate with a supervisory robot control system using a message sent via any of the list of: SMS, a web address, a phone, a second robot control unit.

13. (previously amended) The wireless controller according to claim 9, wherein the output of the control unit is configured to send a communication to a human operator via any of a list of: SMS, a web address, a network address, a phone, a control unit.

14. (previously amended) The wireless controller according to claim 1, wherein the control unit further comprises a control loop configured to receive an input signal from a high level control system and to generate a control signal to said tool dependent on the input signal from the high level control system.

15. (previously amended) The wireless controller according to claim 14, wherein input/output signals of the control loop of the control unit are compatible with a high level language.

16. (previously amended) The wireless controller according to claim 6, further comprising:

an additional processor configured to carry out at least one of receiving and storing operational data of said tool.

17. (previously amended) The wireless controller according to claim 1, wherein the wireless communication module is configured to operate compatible with a standard issued by the Bluetooth SIG Inc.

18. (previously amended) The wireless controller according to claim 17, wherein the wireless communication module comprises protocol stack handling for both incoming and outgoing communications.

19. (previously amended) The wireless controller according to claim 17, wherein wireless communication is transmitted according to a protocol that emulates a serial transmission line.

20. (currently amended) The wireless controller according to claim 1, further comprising:

a wireless input/output module configured to provide wireless I/O functions between the ~~robot control unit~~ supervisory controller and said tool, wherein the wireless input/output module is arranged on or in relative proximity to the industrial robot.

21. (currently amended) A method for wireless at least one of control or monitoring of a tool operatively connected to an industrial robot, the method comprising:

configuring a configurable hardware input/output interface of a wireless controller,

sending a wireless signal from a supervisory controller physically separate from the industrial robot to a wireless communication module ~~of a~~ of the wireless controller operatively connected to said tool ~~and configured~~ to control operation of the tool,

handling wireless communication to and from the tool with a communication function module of a processor of the wireless communication module,

carrying out at least one control function for one or more actuators of said tool with a control unit of the wireless communication module,

receiving the signal with the wireless communication module,

processing the wireless signal in a processor of a control unit operatively connected to the wireless communication module, and

generating a second control signal in the processor and sending the second control signal to said tool.

22. (previously amended) The method according to claim 21, further comprising sending the second control signal with a hardware input/output interface of the wireless controller.

23. (previously amended) The method according to claim 21, further comprising storing operational data for said tool in a memory of the wireless controller.

24. (previously amended) The method according to claim 21, further comprising storing an in-signal and a result signal sent out in a memory of the wireless controller.

25. (previously amended) The method according to claim 21, further comprising processing operational data and providing, for a web client or a thin client, data comprising any from the list of: signals, results, number of complete cycles, cycle time, statistical information, alarms.

26. (previously amended) The method according to claim 21, further comprising providing operational data for a display.

27. (previously amended) The method according to claim 21, further comprising providing diagnostic information based on an operational data.

28. (previously amended) The method according to claim 27, further comprising: providing the diagnostic information arranged compatible with a web client or a thin client.

29. (previously amended) The method according to claim 28, further comprising: providing the diagnostic information arranged compatible with a web browser or telephone adapted web browser format including from the list of : XML, HTML, WML, WBXML.

30. (previously amended) The method according to claim 27, further comprising:
providing the diagnostic information arranged compatible with a Java applet.

31. (previously amended) The method according to claim 21, further comprising:
downloading operational information and/or configuration data stored in the wireless
controller to at least one of a second wireless controller or a second tool neither of which are
mounted on the robot.

32. (currently amended) The method according to claim 21, further comprising:
providing wireless ~~I/O~~ input/output functions between the robot control system and the
tool arranged on or in relative proximity to the industrial robot.

33. (previously amended) The method according to claim 21, wherein the method
carries out at least one of controlling and monitoring a tool arranged with an industrial robot to
carry out the operation of any one from the list of: welding, soldering, riveting, painting, gluing,
folding plate, bending plate, hemming plate, gripping an object, manipulating an object.

34. (previously amended) The method according to claim 21, wherein the method
carries out at least one of configuring and calibrating a second wireless controller and/or a
second tool prior to use with a robot.

35. (previously amended) The method according to claim 21, wherein the wireless
controller is operated by a human operator to carry out at least one of controlling and monitoring

the tool.

36. (previously amended) The method according to claim 21, wherein the wireless controller comprises a process running on one or more computers to carry out at least one of supervising and controlling the tool.

37. (currently amended) A computer program product, comprising:
a non-transitory computer readable medium; and
at least one of computer code ~~and/or~~ or software code portions recorded on the computer readable medium for making a computer or processor perform a method for wireless at least one of control or monitoring of a tool operatively connected to an industrial robot, the method comprising
configuring a configurable hardware input/output interface of a wireless controller,
sending a wireless signal from a supervisory controller physically separate from the industrial robot to a wireless communication module ~~of a~~ of the wireless controller operatively connected to said tool ~~and configured~~ to control operation of the tool,
handling wireless communication to and from the tool with a communication function module of a processor of the wireless communication module,
carrying out at least one control function for one or more actuators of said tool with a control unit of the wireless communication module,
receiving the signal with the wireless communication module,
processing the wireless signal in a processor of a control unit operatively connected to the wireless communication module, and

generating a second control signal in the processor and sending the second control signal to said tool.

38. (cancelled)

39. (currently amended) A graphical user interface for carrying out at least one of controlling or monitoring ~~and~~ a tool operatively connected to an industrial robot, comprising:

a display of operational data of the tool provided by a wireless controller comprising a wireless communication module operatively connected to the tool and comprising a processor having a communication function module configured to handle wireless communication to and from said tool, and a control unit configured to carry out at least one control function for one or more actuators of said tool, and a supervisory controller physically separate from the industrial robot and configured to wirelessly send signals to the wireless communication module to control operation of the tool, wherein the operational data values displayed are combined with a graphical representation of a relevant production cell or part thereof.

40. (previously amended) The graphical user interface according to claim 39, wherein the operational data values are provided by an embedded web server comprised in the control of the wireless controller.

41. (cancelled)

42. (cancelled)

43. (currently amended) A wireless controller for carrying out at least one of controlling or monitoring a tool operatively connected to an industrial robot, the wireless controller comprising:

a wireless communication module operatively connected to the tool and including a processor comprising communication function software configured to handle a wireless protocol stack for communication to and from said tool,

a configurable hardware input/output interface, and

a control unit configured to carry out at least one control function for one or more actuators of said tool.

44. (new) A graphical user interface for carrying out at least one of controlling or monitoring a tool operatively connected to an industrial robot, comprising:

a display of operational data of the tool provided by a wireless controller comprising a wireless communication module operatively connected to the tool and comprising a processor having a communication function module configured to handle wireless communication to and from said tool, and a control unit configured to carry out at least one control function for one or more actuators of said tool, and a supervisory controller physically separate from the industrial robot and configured to wirelessly send signals to the wireless communication module to control operation of the tool, wherein the operational data values displayed are arranged to be displayed upon activation of a part of the graphical representation of the relevant production cell or part thereof using a computer mouse, joystick, touch screen or similar computer display selection element.